

## **IN THE CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application. An identifier indicating the status of each claim is provided.

### **Listing of Claims**

1. (currently amended) A model adaptive apparatus for performing an adaptation of a model used in pattern recognition which classifies input data in a time series into one of a predetermined number of models, said model adaptive apparatus comprising:

data extraction means for extracting said input data, corresponding to a predetermined model, which is observed in a predetermined interval, and for outputting the data as extracted data; and

model adaptation means for performing an adaptation of said predetermined model on the basis of the extracted data in said predetermined interval and the degree of freshness representing the recentness of the extracted data,

wherein said model adaptation means uses, as said freshness, a function in which the value changes in such a manner as to correspond to the time-related position of said extracted data in said predetermined interval.

2. (original) A model adaptive apparatus according to claim 1, wherein said pattern recognition is performed based on a feature distribution in a feature space of said input data.

3. (cancelled)

4. (currently amended) A model adaptive apparatus according to ~~claim 3~~ claim 1, wherein said function is a monotonically increasing function which increases as time elapses.

5. (original) A model adaptive apparatus according to claim 4, wherein said function is a linear or nonlinear function.

6. (original) A model adaptive apparatus according to claim 4, wherein said function takes discrete values or continuous values.

7. (original) A model adaptive apparatus according to claim 4, wherein said function is a second-order function, a third-order function, or a higher-order function.

8. (original) A model adaptive apparatus according to claim 4, wherein said function is a logarithmic function.

9. (previously presented) A model adaptive apparatus according to claim 1, wherein said input data is speech data.

10. (original) A model adaptive apparatus according to claim 9, wherein said predetermined model is a sound model representing noise in an interval which is not a speech segment.

11. (currently amended) A model adaptive apparatus ~~according to claim 1,~~  
~~wherein said data extraction means comprise:~~ for performing an adaptation of a model  
used in pattern recognition which classifies input data in a time series into one of a  
predetermined number of models, said model adaptive apparatus comprising:

data extraction means for extracting said input data, corresponding to a  
predetermined model, which is observed in a predetermined interval, and for outputting  
the data as extracted data; and

model adaptation means for performing an adaptation of said predetermined model  
on the basis of the extracted data in said predetermined interval and the degree of  
freshness representing the recentness of the extracted data,

wherein said data extraction means comprise:

framing means (2) having an input for receiving a source (1) of speech and/or  
environmental noise and for producing in response data frames;

noise observation interval extraction means (3) for extracting a noise vector  
for a number (M) of frames in a noise observation interval (Tn);

feature extraction means (5) responsive to said noise vector (a) and to an  
observation vector (a) in a speech recognition interval to produce a feature vector  
(y); and

no-speech sound model correction means ~~(7)~~-responsive to said noise vector.

12. (currently amended) A model adaptive apparatus ~~according to claim 1,~~  
~~further comprising:~~ for performing an adaptation of a model used in pattern recognition  
which classifies input data in a time series into one of a predetermined number of models,  
said model adaptive apparatus comprising:

data extraction means for extracting said input data, corresponding to a  
predetermined model, which is observed in a predetermined interval, and for outputting  
the data as extracted data;

model adaptation means for performing an adaptation of said predetermined model  
on the basis of the extracted data in said predetermined interval and the degree of  
freshness representing the recentness of the extracted data;

power spectrum analysis means ~~(11)~~-for receiving said extracted data;

noise characteristic calculation means ~~(13)~~-responsive to environmental noise; and

feature distribution parameter calculation means ~~(12)~~-for producing a feature  
distribution parameter (Z) in response to said power spectrum analysis means and said  
noise characteristic calculation means.

13. (currently amended) A model adaptive apparatus according claim 12, further  
comprising:

a plurality of identification function computation means ~~(21-s, 21-1-21k)~~ of which  
one at least receives a no-speech model, said means receiving said feature distribution

parameter (Z) and producing in response a respective identification function ( $G_s(Z)$ ,  $G_l(Z) - G_k(Z)$ ); and

determination mean (22)-responsive to said identification functions to produce a recognition result on the basis of a closest match.

14. (previously presented) A model adaptive apparatus according to claim 1, further comprising:

feature extraction means for extracting the features of said input data;

storage means for storing a predetermined number of models into which said input data is to be classified; and

classification means for classifying the features of said input data, corresponding to a predetermined model, which is observed in a predetermined interval, and for outputting the data as extracted data.

15. (currently amended) A pattern recognition apparatus for classifying input data in a time series into one of a predetermined number of models, said pattern recognition apparatus comprising:

feature extraction means for extracting the features of said input data;

storage means for storing said predetermined number of models;

classification means for classifying the features of said input data into one of said predetermined number of models;

data extraction means for extracting said input data, corresponding to a predetermined model, which is observed in a predetermined interval, and for outputting the data as extracted data; and

model adaptation means for performing an adaptation of said predetermined model on the basis of the extracted data in said predetermined interval and the degree of freshness representing the recentness of the extracted data,

wherein said model adaptation means uses, as said freshness, a function in which the value changes in such a manner as to correspond to the time-related position of said extracted data in said predetermined interval.

16. (currently amended) A model adaptive method for performing an adaptation of a model used in pattern recognition which classifies input data in a time series into one of a predetermined number of models, said model adaptive method comprising:

a data extraction step of extracting said input data, corresponding to a predetermined model, which is observed in a predetermined interval, and of outputting the data as extracted data; and

a model adaptation step of performing an adaptation of said predetermined model on the basis of the extracted data in said predetermined interval and the degree of freshness representing the recentness of the extracted data,

wherein said model adaptation step uses, as said freshness, a function in which the value changes in such a manner as to correspond to the time-related position of said extracted data in said predetermined interval.

17. (currently amended) A recording medium having recorded therein a program for causing a computer to perform an adaptation of a model used in pattern recognition which classifies input data in a time series into one of a predetermined number of models, said program comprising:

a data extraction step of extracting said input data, corresponding to a predetermined model, which is observed in a predetermined interval, and of outputting the data as extracted data; and

a model adaptation step of performing an adaptation of said predetermined model on the basis of the extracted data in said predetermined interval and the degree of freshness representing the recentness of the extracted data,

wherein said model adaptation step uses, as said freshness, a function in which the value changes in such a manner as to correspond to the time-related position of said extracted data in said predetermined interval.